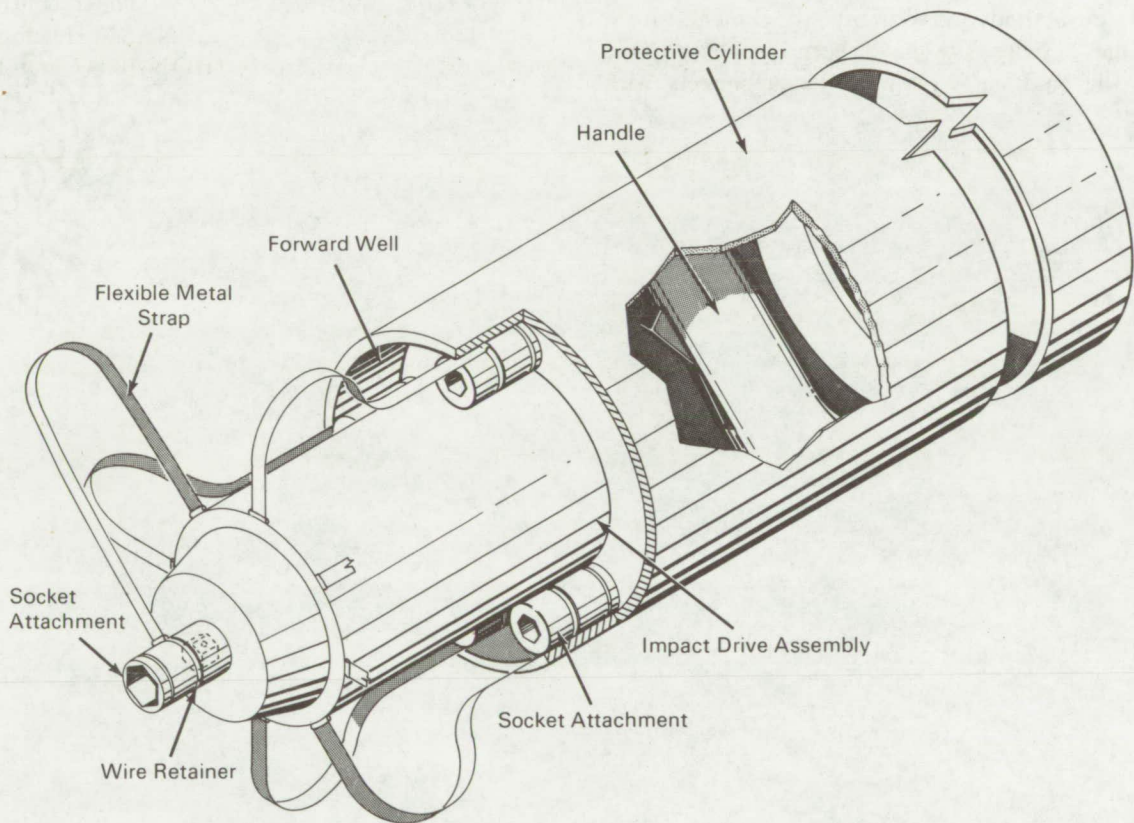


NASA TECH BRIEF



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Multi-Purpose Tool Mitten



Tool Mitten

Tasks to be performed by astronauts during extra-vehicular activities require a means of keeping power tool attachments from drifting away from the activity site. While the tools are designed specifically for a space environment, the novel techniques employed to prevent the attachments from drifting away may have industrial applications. On steel scaffolding or in high

building maintenance where the operator has no available surface on which to place tools, these space tool techniques might be useful. The proposed tool concepts might also be adapted to underwater environments.

One tool has been proposed and a prototype built that has made the attachments an integral part of the

(continued overleaf)

tool. This device, the Tool Mitten, provides a low reaction-torque source of power for wrench, screw-driver, or drill activities. An impact drive assembly is positioned at the center of the front panel of the protective cylinder of the tool, as shown in the diagram. The attachments are stored in the forward well when not in use. A flexible metal strap is connected to a wire retainer set in a groove on the attachment, and then to a steel ring located on the forward periphery of the drive housing. By bending the metal strap an attachment can be brought out of the forward well and inserted on the fitting of the impact drive. When power is applied the wire retainer slips freely in the groove on the attachment. The attachment can be disengaged and returned to the well without the necessity of being free of the tool.

Alternate methods to prevent attachments from leaving the activity site have been proposed. One method, the tool cuff, retains wrench sockets with

threaded tapered studs having capture nuts at the small end of the taper. The cuff could be attached to the operator's arm or leg, eliminating the need for a tool box.

Note:

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